

IN THE CLAIMS

Please cancel claims 29, 32, 33, 40 and 41 amend claims 27, 34, 35 and 42 as follows:

1-26. (CANCELED)

27. (CURRENTLY AMENDED) A method for reducing the asymmetry error in a beacon, wherein the beacon comprises of multiple beams, and each beam is formed from a multiplicity of feed channels, comprising the step of:

(a) computing beacon asymmetry angles, comprising the step of computing a difference between known azimuth/elevation angles, (az el), and their corresponding predicted beam-formed azimuth/elevation angles, (az<sub>c</sub> el<sub>c</sub>):(az-az<sub>c</sub> el-el<sub>c</sub>); and

(b) using the beacon asymmetry angles to correct the beacon sensor measurements, including the step of using the beacon asymmetry angles as time-varying beacon bias angles;[[.]]

wherein the corresponding beam-formed azimuth/elevation angles are computed according to  $az_c = K_{az} \frac{E^2 - W^2}{E^2 + W^2}$ , and  $el_c = K_{el} \frac{N^2 - S^2}{N^2 + S^2}$  where  $K_{az}$  and  $K_{el}$  are optimal beacon slopes, and E, W, N, and S are East, West, North, and South beam magnitudes of the beacon beams.

28. (PREVIOUSLY PRESENTED) The method of claim 27, wherein the step of using the beacon asymmetry angles to correct the beacon sensor measurements includes the step of using the beacon asymmetry angles as beacon bias angles.

29. (CANCELED)

30. (ORIGINAL) The method of claim 27, wherein steps (a)-(b) are performed in a terrestrially-based processor.

31. (ORIGINAL) The method of claim 27, wherein steps (a)-(b) are performed by a satellite processor.

32. (CANCELED)

33. (CANCELED)

34. (CURRENTLY AMENDED) The method of claim [[33]] 27, wherein the E, W, N, and S beam magnitudes of the beacon are computed according to:

$$E(az, el) = W_E^T X ;$$

$$W(az, el) = W_W^T X ;$$

$$N(az, el) = W_N^T X ;$$

$$S(az, el) = W_S^T X ; \text{ and}$$

wherein the  $W_E$ ,  $W_W$ ,  $W_N$ , and  $W_S$  are the channel weights of East, West, North, and South beacon beams, and  $X$  is a response of a plurality of feed chains at look angle (az el).

35. (CURRENTLY AMENDED) An apparatus for reducing the asymmetry error in a beacon, wherein the beacon comprises of multiple beams, and each beam is formed from a multiplicity of feed channels, comprising:

means for computing beacon asymmetry angles, comprising means for computing a difference between known azimuth/elevation angles, (az el), and their corresponding predicted beam-formed azimuth/elevation angles, (az<sub>c</sub> el<sub>c</sub>):(az-az<sub>c</sub> el-el<sub>c</sub>); and

means for using the beacon asymmetry angles to correct the beacon sensor measurements[[.]]

wherein the corresponding beam-formed azimuth/elevation angles are computed according to  $az_c = K_{az} \frac{E^2 - W^2}{E^2 + W^2}$ , and  $el_c = K_{el} \frac{N^2 - S^2}{N^2 + S^2}$  where  $K_{az}$  and  $K_{el}$  are optimal beacon slopes, and E, W, N, and S are East, West, North, and South beam magnitudes of the beacon beams.

36. (PREVIOUSLY PRESENTED) The apparatus of claim 35, wherein the means for using the beacon asymmetry angles to correct the beacon sensor measurements includes means for using the beacon asymmetry angles as beacon bias angles.

37. (PREVIOUSLY PRESENTED) The apparatus of claim 35, wherein the means for using the beacon asymmetry angles to correct the beacon sensor measurements includes means for using the beacon asymmetry angles as time-varying beacon bias angles.

38. (PREVIOUSLY PRESENTED) The apparatus of claim 35, wherein the means for computing beacon asymmetry angles and the means for using the asymmetry angles to correct the beacon sensor measurements comprise a terrestrially-based processor.

39. (PREVIOUSLY PRESENTED) The apparatus of claim 35, wherein the means for computing beacon asymmetry angles and the means for using the asymmetry angles to correct the beacon sensor measurements comprise a satellite-based processor.

40. (CANCELED)

41. (CANCELED)

42. (CURRENTLY AMENDED) The apparatus of claim [[41]] 35, wherein the E, W, N, and S beam magnitudes of the beacon are computed according to:

$$E(az, el) = W_E^T X ;$$

$$W(az, el) = W_W^T X ;$$

$$N(az, el) = W_N^T X ;$$

$$S(az, el) = W_S^T X ; \text{ and}$$

wherein the  $W_E$ ,  $W_W$ ,  $W_N$ , and  $W_S$  are the channel weights of East, West, North, and South beacon beams, and  $X$  is a response of a plurality of feed chains at look angle (az el).

43. (PREVIOUSLY PRESENTED) The method of claim 27, wherein the beacon is a terrestrial beacon.

44. (PREVIOUSLY PRESENTED) The apparatus of claim 35, wherein the beacon is a terrestrial beacon.